

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A reaction apparatus comprising a heat exchanger and a reactor with a heater, which are enclosed in an outer casing having a bottom, a ceiling wall part and a side wall part, wherein the ceiling wall part and the side wall part of the outer casing are integrally formed, or the outer casing has an integrated structure where the ceiling wall part and the side wall part are integrally joined; and

wherein the heat exchanger has a first end and a second end, whereby the first end of the heat exchanger being connected to the reactor and the second end of the heat exchanger and the bottom of the outer casing being fixed to each other by a flange, and a low-temperature sealing material usually usable at a temperature of around 100°C is used at the flange, and a double piping having an inner tube and an outer tube, for introducing a gas to be treated and for discharging the treated gas, wherein the double piping is being connected to the second end of the heat exchanger, such that gas passes through the heat exchanger, the reactor and the heat exchanger in this order during a process from introducing gas through one of the inner tube and the outer tube in the double piping to discharging the gas through the other tube of the inner tube and the outer tube; and

the flange is provided so that the distance from the flange to the bottom end of the reactor is about 190 mm or more.

2. (previously presented): The reaction apparatus as claimed in claim 1, wherein the heat exchanger is a shell and tube-type heat exchanger.

3. (previously presented): The reaction apparatus as claimed in claim 1, wherein the outer casing has an eyebolt fixing part for detachably engaging the outer casing to the reactor.

4. (previously presented): The reaction apparatus as claimed in claim 1, wherein the reactor has fins in the inside thereof.

5. (previously presented): The reaction apparatus as claimed in claim 1, wherein at least one fin is provided inside the inner tube in the double piping and/or between the inner tube and the outer tube in the double piping.

6. (previously presented): The reaction apparatus as claimed in claim 1, comprising a mechanism where the gas to be treated is introduced through the inner tube and discharged through the outer tube.

7. (previously presented): The reaction apparatus as claimed in claim 6, wherein the outer tube of the double piping has a heat radiating plate.

8. (previously presented): The reaction apparatus as claimed in claim 1, wherein the reaction apparatus is adapted to be installed horizontally and the reactor with a heater and the heat exchanger are placed horizontally with respect to each other.

9-11. (cancelled).